

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
21 October 2004 (21.10.2004)

PCT

(10) International Publication Number  
**WO 2004/090451 A1**

(51) International Patent Classification<sup>7</sup>: F28D 21/00, F28F 21/04, 9/02 // 7/02, 27/02

(21) International Application Number:  
PCT/NO2004/000080

(22) International Filing Date: 22 March 2004 (22.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
20031710 11 April 2003 (11.04.2003) NO

(71) Applicant (for all designated States except US): NORSK HYDRO ASA [NO/NO]; N-0240 Oslo (NO).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BRUUN, Tor [NO/NO]; Tellusveien 17, N-3942 Skelvik (NO). WERSWICK, Bjørnar [NO/NO]; Barlindkroken 1c, N-3970 Langesund (NO).

(74) Agent: JOHNSEN, Venche Hølnes; Norsk Hydro ASA, N-0240 Oslo (NO).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

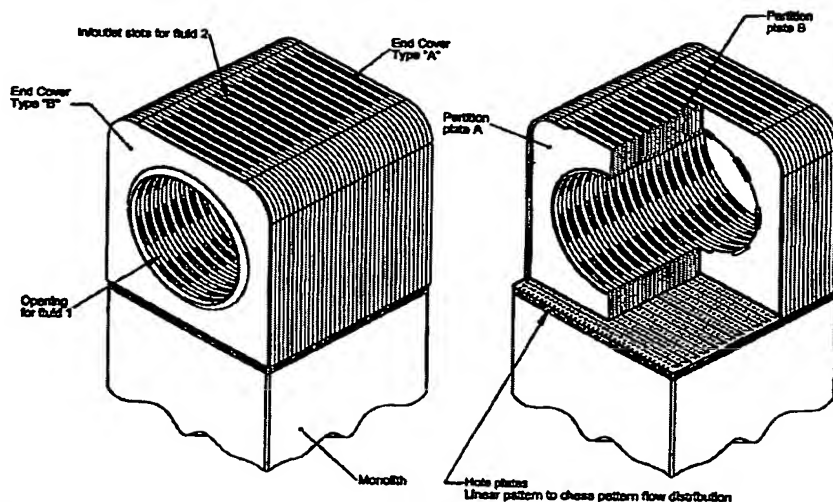
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND EQUIPMENT FOR DISTRIBUTION OF TWO FLUIDS INTO AND OUT OF THE CHANNELS IN A MULTI-CHANNEL MONOLITHIC STRUCTURE AND USE THEREOF



(57) Abstract: The present invention concerns a method and equipment for distribution of two fluids into and out of the channels in a multi-channel monolithic structure (monolith) where the channel openings are spread over the entire cross-sectional area of said structure. Said equipment consists of a manifold head, a monolith unit or a monolith stack, or a row of said units or stacks or a monolith block. Furthermore, the present invention concerns a method and a reactor for mass and/or heat transfer between two fluids where said fluids are distributed through one or more of said manifold heads and units or stack or row of units or stacks or blocks.